Paul D Docherty

List of Publications by Year
in descending order

130 papers	1,418 citations	394421 19 h-index	395702 33 g-index
131 all docs	131 docs citations	131 times ranked	631 citing authors

#	Article	IF	Citations
1	A physiological Intensive Control Insulin-Nutrition-Glucose (ICING) model validated in critically ill patients. Computer Methods and Programs in Biomedicine, 2011, 102, 192-205.	4.7	169
2	A graphical method for practical and informative identifiability analyses of physiological models: A case study of insulin kinetics and sensitivity. BioMedical Engineering OnLine, 2011, 10, 39.	2.7	90
3	Time-Varying Respiratory System Elastance: A Physiological Model for Patients Who Are Spontaneously Breathing. PLoS ONE, 2015, 10, e0114847.	2.5	66
4	Characterisation of the iterative integral parameter identification method. Medical and Biological Engineering and Computing, 2012, 50, 127-134.	2.8	65
5	The dynamic insulin sensitivity and secretion test—a novel measure of insulin sensitivity. Metabolism: Clinical and Experimental, 2011, 60, 1748-1756.	3.4	52
6	Improvements in Glucose Metabolism and Insulin Sensitivity with a Low-Carbohydrate Diet in Obese Patients with Type 2 Diabetes. Journal of the American College of Nutrition, 2013, 32, 11-17.	1.8	48
7	Optimising mechanical ventilation through model-based methods and automation. Annual Reviews in Control, 2019, 48, 369-382.	7.9	47
8	Design and Clinical Pilot Testing of the Model-Based Dynamic Insulin Sensitivity and Secretion Test (DISST). Journal of Diabetes Science and Technology, 2010, 4, 1408-1423.	2.2	46
9	Structural Identifiability and Practical Applicability of an Alveolar Recruitment Model for ARDS Patients. IEEE Transactions on Biomedical Engineering, 2012, 59, 3396-3404.	4.2	46
10	Predictive Virtual Patient Modelling of Mechanical Ventilation: Impact of Recruitment Function. Annals of Biomedical Engineering, 2019, 47, 1626-1641.	2.5	41
11	DISTq: An Iterative Analysis of Glucose Data for Low-Cost, Real-Time and Accurate Estimation of Insulin Sensitivity. Open Medical Informatics Journal, 2009, 3, 65-76.	1.0	37
12	Assessing respiratory mechanics using pressure reconstruction method in mechanically ventilated spontaneous breathing patient. Computer Methods and Programs in Biomedicine, 2016, 130, 175-185.	4.7	32
13	Iterative integral parameter identification of a respiratory mechanics model. BioMedical Engineering OnLine, 2012, 11, 38.	2.7	29
14	Use of basis functions within a non-linear autoregressive model of pulmonary mechanics. Biomedical Signal Processing and Control, 2016, 27, 44-50.	5.7	24
15	Continuous Stroke Volume Estimation from Aortic Pressure Using Zero Dimensional Cardiovascular Model: Proof of Concept Study from Porcine Experiments. PLoS ONE, 2014, 9, e102476.	2.5	23
16	Prediction of lung mechanics throughout recruitment maneuvers in pressure-controlled ventilation. Computer Methods and Programs in Biomedicine, 2020, 197, 105696.	4.7	22
17	Model-based PEEP titration versus standard practice in mechanical ventilation: a randomised controlled trial. Trials, 2020, 21, 130.	1.6	22
18	Independent cohort cross-validation of the real-time DISTq estimation of insulin sensitivity. Computer Methods and Programs in Biomedicine, 2011, 102, 94-104.	4.7	21

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19	Structural identifiability analysis of a cardiovascular system model. Medical Engineering and Physics, 2016, 38, 433-441.	1.7	21
20	Extrapolation of a non-linear autoregressive model of pulmonary mechanics. Mathematical Biosciences, 2017, 284, 32-39.	1.9	21
21	A Novel Fabrication Method for Compliant Silicone Phantoms of Arterial Geometry for Use in Particle Image Velocimetry of Haemodynamics. Applied Sciences (Switzerland), 2019, 9, 3811.	2.5	20
22	Reformulation of the pressure-dependent recruitment model (PRM) of respiratory mechanics. Biomedical Signal Processing and Control, 2014, 12, 47-53.	5.7	19
23	Contact force and torque sensing for serial manipulator based on an adaptive Kalman filter with variable time period. Robotics and Computer-Integrated Manufacturing, 2021, 72, 102210.	9.9	18
24	Shedding light on grey noise in diabetes modelling. Biomedical Signal Processing and Control, 2017, 31, 16-30.	5.7	17
25	Fabrication of a compliant phantom of the human aortic arch for use in Particle Image Velocimetry (PIV) experimentation. Current Directions in Biomedical Engineering, 2016, 2, 493-497.	0.4	15
26	The Effect of a Diet Moderately High in Protein and Fiber on Insulin Sensitivity Measured Using the Dynamic Insulin Sensitivity and Secretion Test (DISST). Nutrients, 2017, 9, 1291.	4.1	15
27	Practical identifiability analysis of a minimal cardiovascular system model. Computer Methods and Programs in Biomedicine, 2019, 171, 53-65.	4.7	15
28	A Spectrum of Dynamic Insulin Sensitivity Test Protocols. Journal of Diabetes Science and Technology, 2011, 5, 1499-1508.	2.2	14
29	Impact of Haemodialysis on Insulin Kinetics of Acute Kidney Injury Patients in Critical Care. Journal of Medical and Biological Engineering, 2015, 35, 125-133.	1.8	14
30	Application of a meta-analysis of aortic geometry to the generation of a compliant phantom for use in particle image velocimetry experimentation. IFAC-PapersOnLine, 2015, 48, 407-412.	0.9	13
31	A modified approach to objective surface generation within the Gauss-Newton parameter identification to ignore outlier data points. Biomedical Signal Processing and Control, 2016, 30, 162-169.	5.7	13
32	Prediction of high airway pressure using a non-linear autoregressive model of pulmonary mechanics. BioMedical Engineering OnLine, 2017, 16, 126.	2.7	12
33	A deep learning spatial-temporal framework for detecting surgical tools in laparoscopic videos. Biomedical Signal Processing and Control, 2021, 68, 102801.	5.7	12
34	Non-identifiability of the Rayleigh damping material model in Magnetic Resonance Elastography. Mathematical Biosciences, 2013, 246, 191-201.	1.9	11
35	Utility of a novel error-stepping method to improve gradient-based parameter identification by increasing the smoothness of the local objective surface: A case-study of pulmonary mechanics. Computer Methods and Programs in Biomedicine, 2014, 114, e70-e78.	4.7	10
36	Estimation of secondary effect parameters in glycaemic dynamics using accumulating data from a virtual type 1 diabetic patient. Mathematical Biosciences, 2015, 266, 108-117.	1.9	10

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37	Performance of variations of the dynamic elastance model in lung mechanics. Control Engineering Practice, 2017, 58, 262-267.	5.5	10
38	A Minimal C-Peptide Sampling Method to Capture Peak and Total Prehepatic Insulin Secretion in Model-Based Experimental Insulin Sensitivity Studies. Journal of Diabetes Science and Technology, 2009, 3, 875-886.	2.2	9
39	Developments in Modelling Bone Screwing. Current Directions in Biomedical Engineering, 2020, 6, 111-114.	0.4	9
40	Practical identifiability of parametrised models: A review of benefits and limitations of various approaches. Mathematics and Computers in Simulation, 2022, 199, 202-216.	4.4	9
41	A polynomial model of patient-specific breathing effort during controlled mechanical ventilation. , 2015, 2015, 4532-5.		8
42	Student perspectives of independent and collaborative learning in a flipped foundational engineering course. Australasian Journal of Educational Technology, 0, , .	3.5	8
43	The Identification of Insulin Saturation Effects During the Dynamic Insulin Sensitivity Test. Open Medical Informatics Journal, 2010, 4, 141-148.	1.0	8
44	Multi-frequency inversion in Rayleigh damped Magnetic Resonance Elastography. Biomedical Signal Processing and Control, 2014, 13, 270-281.	5.7	7
45	Parametric-based brain Magnetic Resonance Elastography using a Rayleigh damping material model. Computer Methods and Programs in Biomedicine, 2014, 116, 328-339.	4.7	7
46	Regressive cross-correlation of pressure signals in the region of stenosis: Insights from particle image velocimetry experimentation. Biomedical Signal Processing and Control, 2017, 32, 143-149.	5.7	7
47	A Patient-Specific Airway Branching Model for Mechanically Ventilated Patients. Computational and Mathematical Methods in Medicine, 2014, 2014, 1-10.	1.3	6
48	Contact force estimation for serial manipulator based on weighted moving average with variable span and standard Kalman filter with automatic tuning. International Journal of Advanced Manufacturing Technology, 2022, 118, 3443-3456.	3.0	6
49	A Deep Learning Framework for Recognising Surgical Phases in Laparoscopic Videos. IFAC-PapersOnLine, 2021, 54, 334-339.	0.9	6
50	Review of the Development of Hemodynamic Modeling Techniques to Capture Flow Behavior in Arteries Affected by Aneurysm, Atherosclerosis, and Stenting. Journal of Biomechanical Engineering, 2022, 144, .	1.3	6
51	Observation of incretin effects during enteral feed transitions of critically ill patients. E-SPEN Journal, 2012, 7, e154-e159.	0.5	5
52	Reducing the Effect of Outlying Data on the Identification of Insulinaemic Pharmacokinetic Parameters with an Adapted Gauss-Newton Approach. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 5635-5640.	0.4	5
53	Implementation of a Non-Linear Autoregressive Model with Modified Gauss-Newton Parameter Identification to Determine Pulmonary Mechanics of Respiratory Patients that are Intermittently Resisting Ventilator Flow Patterns. IFAC-PapersOnLine, 2015, 48, 354-359.	0.9	5
54	Laboratory diagnosis of gestational diabetes: An in silico investigation into the effects of pre-analytical processing on the diagnostic sensitivity and specificity of the oral glucose tolerance test. Clinical Biochemistry, 2017, 50, 506-512.	1.9	5

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55	Accurate and precise prediction of insulin sensitivity variance in critically ill patients. Biomedical Signal Processing and Control, 2018, 39, 327-335.	5.7	5
56	Principles of Product Design in Developing Countries. Applied System Innovation, 2018, 1, 11.	4.6	5
57	Traversing the Fuzzy Valley: Problems Caused by Reliance on Default Simulation and Parameter Identification Programs for Discontinuous Models. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 490-494.	0.4	4
58	Altered blood glucose dynamics during and after anhepatic phase of liver transplantation: A model-based approach. , 2013, , .		4
59	Clinical Validation of the Quick Dynamic Insulin Sensitivity Test. IEEE Transactions on Biomedical Engineering, 2013, 60, 1266-1272.	4.2	4
60	Parameter Identification Methods in a Model of the Cardiovascular Systemâˆ—âˆ—This work was supported by the French Community of Belgium, the Belgian Funds for Scienti_c Research (F.R.S.-FNRS) and EU Marie Curie Actions (FP7-PEOPLE-2012-IRSES).. IFAC-PapersOnLine, 2015, 48, 366-371.	0.9	4
61	The dimensional reduction method for identification of parameters that trade-off due to similar model roles. Mathematical Biosciences, 2017, 285, 119-127.	1.9	4
62	Negative Lung Elastance in Mechanically Ventilated Spontaneously Breathing Patient. IFAC-PapersOnLine, 2017, 50, 15179-15184.	0.9	4
63	Model-based Modified OGTT Insulin Sensitivity Test Design. IFAC-PapersOnLine, 2018, 51, 86-91.	0.9	4
64	The Impact of Exogenous Insulin Input on Calculating Hepatic Clearance Parameters. Journal of Diabetes Science and Technology, 2022, 16, 945-954.	2.2	4
65	Model-based bone material property identification. Automatisierungstechnik, 2020, 68, 913-921.	0.8	4
66	Identifiability Analysis of a Pressure-Depending Alveolar Recruitment Model. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 137-142.	0.4	3
67	An Extension to the First Order Model of Pulmonary Mechanics to Capture a Pressure dependent Elastance in the Human Lung. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 1176-1181.	0.4	3
68	Pressure reconstruction method for spontaneous breathing effort monitoring. Critical Care, 2015, 19, .	5.8	3
69	Multi-frequency Rayleigh damped elastography: in silico studies. Medical Engineering and Physics, 2015, 37, 55-67.	1.7	3
70	The necessity of identifying the basal glucose set-point in the IVGTT for patients with Type 2 Diabetes. BioMedical Engineering OnLine, 2015, 14, 18.	2.7	3
71	Evaluation of pharmacokinetic model designs for subcutaneous infusion of insulin aspart. Journal of Pharmacokinetics and Pharmacodynamics, 2017, 44, 477-489.	1.8	3
72	Basis Function Modelling of Respiratory Patients with High or Low Auto-PEEP. IFAC-PapersOnLine, 2017, 50, 15121-15126.	0.9	3

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73	Basis function identification of lung mechanics in mechanical ventilation for predicting outcomes of therapy changes: A first virtual patient. IFAC-PapersOnLine, 2018, 51, 299-304.	0.9	3
74	The quadratic dimensional reduction method for parameter identification. Communications in Nonlinear Science and Numerical Simulation, 2019, 73, 425-436.	3.3	3
75	The contribution of gender segregated secondary education on the progression to engineering. Australasian Journal of Engineering Education, 2020, 25, 31-38.	1.4	3
76	An improved particle swarm optimization algorithm and its application in solving forward kinematics of a 3-DoF parallel manipulator. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2021, 235, 896-907.	2.1	3
77	In-vitro particle image velocimetry assessment of the endovascular haemodynamic features distal of stent-grafts that are associated with development of limb occlusion. Journal of the Royal Society of New Zealand, 2021, 51, 361-374.	1.9	3
78	PIV Analysis of Haemodynamics Distal to the Frozen Elephant Trunk Stent Surrogate. Cardiovascular Engineering and Technology, 2021, 12, 373-386.	1.6	3
79	In vitro pulsatile flow study in compliant and rigid ascending aorta phantoms by stereo particle image velocimetry. Medical Engineering and Physics, 2021, 96, 81-90.	1.7	3
80	Exposure to methoxyflurane: Low-dose analgesia and occupational exposure. Australasian Journal of Paramedicine, 0, 17, .	0.3	3
81	Changes of Physiological parameters of the patient during laparoscopic gynaecology. Current Directions in Biomedical Engineering, 2021, 7, 500-503.	0.4	3
82	Assessing Generalisation Capabilities of CNN Models for Surgical Tool Classification. Current Directions in Biomedical Engineering, 2021, 7, 476-479.	0.4	3
83	A three-compartment model of the C-peptide–insulin dynamic during the DIST test. Mathematical Biosciences, 2010, 228, 136-146.	1.9	2
84	Impact of haemodialysis on insulin sensitivity of acute renal failure (ARF) patients with sepsis in critical care. , 2013, 2013, 3503-6.		2
85	A Novel Hierarchal-Based Approach to Measure Insulin Sensitivity and Secretion in At-Risk Populations. Journal of Diabetes Science and Technology, 2014, 8, 807-814.	2.2	2
86	Determining the relative efficacy of a number of PID and PD models that relate insulin secretion to bolus induced glucose excursions. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 2100-2105.	0.4	2
87	A Proportional-Derivative Endogenous Insulin Secretion model with an Adapted Gauss Newton Approach. IFAC-PapersOnLine, 2015, 48, 24-29.	0.9	2
88	Identifying pressure dependent elastance in lung mechanics with reduced influence of unmodelled effects. IFAC-PapersOnLine, 2015, 48, 401-406.	0.9	2
89	Evaluating different approaches to identify a three parameter gas exchange model. Current Directions in Biomedical Engineering, 2016, 2, 669-673.	0.4	2
90	Incorporating bolus and infusion pharmacokinetics into the ICING insulin model. Mathematical Biosciences, 2016, 281, 1-8.	1.9	2

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91	The Novel Dimensional Reduction Method and Tikhonov Regularisation in Parameter Identification of Non-Linear Ill-Posed Problems. IFAC-PapersOnLine, 2017, 50, 5474-5479.	0.9	2
92	The Need to Calculate Target Glucose Levels When Measuring Changes in Insulin Sensitivity During Interventions for Individuals With Type 2 Diabetes. Journal of Diabetes Science and Technology, 2018, 12, 665-672.	2.2	2
93	Assessment of the Dynamic Insulin Secretion and Sensitivity Test (DISST) Pre and Post Gastric bypass Surgery. Experimental and Clinical Endocrinology and Diabetes, 2020, 128, 164-169.	1.2	2
94	Serum fluoride levels following commencement of methoxyflurane for patient analgesia in an ambulance service. British Journal of Anaesthesia, 2020, 125, e457-e458.	3.4	2
95	Using the Adapted Levenberg-Marquardt method to determine the validity of ignoring insulin and glucose data that is affected by mixing. IFAC-PapersOnLine, 2020, 53, 16341-16346.	0.9	2
96	An Alternative Way to Measure Tidal Volumes. IFMBE Proceedings, 2021, , 66-72.	0.3	2
97	Methoxyflurane toxicity: historical determination and lessons for modern patient and occupational exposure. New Zealand Medical Journal, 2021, 134, 76-90.	0.5	2
98	DISTq: Low-cost, accurate and real-time estimation of insulin sensitivity. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 91-96.	0.4	1
99	Evaluation of the Performances and Costs of a Spectrum of Dynamic Insulin Sensitivity Test Protocols. , 2010, , .		1
100	Evaluation of a Glomerular Filtration Term in the DISST Model to Capture the Glucose Pharmacodynamics of an Insulin-Resistant Cohort.. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 1757-1762.	0.4	1
101	Clinical evaluation and interpretation of a proportional-derivative control model for endogenous insulin secretion response to glucose. , 2012, , .		1
102	Use of the DISST Model to Estimate the HOMA and Matsuda Indexes Using Only a Basal Insulin Assay. Journal of Diabetes Science and Technology, 2014, 8, 815-820.	2.2	1
103	An in-silico proof-of-concept investigation of a combined glucose-insulin bolus quick dynamic insulin sensitivity test. Biomedical Signal Processing and Control, 2014, 10, 332-337.	5.7	1
104	Interpolation within a Recruitment Manoeuvre using a Non-Linear Autoregressive Model of Pulmonary Mechanics. IFAC-PapersOnLine, 2015, 48, 297-302.	0.9	1
105	Effects of Different Models and Different Respiratory Manoeuvres in Respiratory Mechanics Estimation. IFMBE Proceedings, 2016, , 50-55.	0.3	1
106	The Influence of Airway Resistance in the Dynamic Elastance Model. IFMBE Proceedings, 2016, , 56-61.	0.3	1
107	Tracking the progression to type 2 diabetes with a proportional-derivative insulin secretion model. Control Engineering Practice, 2017, 59, 165-172.	5.5	1
108	Model based prediction of plateau pressure in mechanically ventilated patients. Current Directions in Biomedical Engineering, 2017, 3, 301-304.	0.4	1

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109	An analysis of the impact of the inclusion of expiration data on the fitting of a predictive pulmonary elastance model. Current Directions in Biomedical Engineering, 2018, 4, 255-258.	0.4	1
110	A bootstrap approach for predicting fluoride toxicity in paramedics after occupational methoxyflurane exposure. IFAC Journal of Systems and Control, 2019, 9, 100061.	1.7	1
111	The Effects of Additional Local-Mixing Compartments in the DISST Model-Based Assessment of Insulin Sensitivity. Journal of Diabetes Science and Technology, 2021, , 193229682110216.	2.2	1
112	A quantitative analysis of the short-term and mid-term benefit of a flipped classroom for foundational engineering dynamics. Research Papers in Education, 0, , 1-15.	3.0	1
113	An in-silico Analysis of the Ability of Dynamic Tests to Trace the Kinetic Behaviour of Insulin Sensitizer Drugs. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 1751-1756.	0.4	0
114	Observation of changes in model-based insulin sensitivity during haemodialysis transitions for critically ill patients. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 349-354.	0.4	0
115	Improving Minimal Model Identifiability in Insulin Resistant Patients Utilizing Insight from the Graphical Structural Model Identifiability Method. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 236-241.	0.4	0
116	Respiratory airway resistance monitoring in mechanically ventilated patients. , 2012, , .		0
117	The Regional Conjugate Optimisation Approach: A Novel Method for Three Parameter Identification of Physiological Models. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 3893-3898.	0.4	0
118	Virtual Trials with b-spline Basis Functions and Stochastic Differential Equations. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 10976-10981.	0.4	0
119	The precision of identified variables with respect to multivariable set size in glycaemic data from a virtual type 1 diabetic patient. IFAC-PapersOnLine, 2015, 48, 82-87.	0.9	0
120	An eigen-analysis of the relationships between model structure, discrete data, measurement error and resulting parameter identification distributions. IFAC-PapersOnLine, 2015, 48, 88-93.	0.9	0
121	Resistance in a non-linear autoregressive model of pulmonary mechanics. Current Directions in Biomedical Engineering, 2016, 2, 623-627.	0.4	0
122	Inspiratory and expiratory elastance in a non-linear autoregressive model of pulmonary mechanics. Current Directions in Biomedical Engineering, 2016, 2, 629-632.	0.4	0
123	Early clinical trial termination: Simulation-based design of a robust stopping rule using difference in interventional effect on mortality. , 2016, , .		0
124	Predicting the Effects of Changing PEEP Using a Basis Function Method. IFAC-PapersOnLine, 2017, 50, 5468-5473.	0.9	0
125	Plateau Pressure Prediction in ARDS Patients. IFAC-PapersOnLine, 2017, 50, 5480-5485.	0.9	0
126	The effect of measurement error on the hierarchical identification of a gas exchange model. IFAC-PapersOnLine, 2017, 50, 15145-15150.	0.9	0

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127	Comparing three differing approaches to identify a three-parameter gas-exchange model with noisy data. IFAC Journal of Systems and Control, 2019, 7, 100038.	1.7	0
128	Authors' Response to Drs. Ece Salihoglu and Ziya Salihoglu's Letter to the Editor. Annals of Biomedical Engineering, 2020, 48, 2-3.	2.5	0
129	An in-silico study of the effect of non-linear skin dynamics on skin-mounted accelerometer inference of skull motion. Biomedical Signal Processing and Control, 2021, 70, 102986.	5.7	0
130	An In-silico Simulation of Pressure Wave Excursions after Impact to the Frontal Lobe of a Homogenous Model of the Brain. IFAC-PapersOnLine, 2020, 53, 16281-16285.	0.9	0